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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,976	09/05/2003	Kumiko Kado	031119	5669
23850 7590 08/09/2007 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005			EXAMINER SHOSHO, CALLIE E	
			ART UNIT 1714	PAPER NUMBER
			MAIL DATE 08/09/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/654,976

Applicant(s)

KADO ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 10-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

#### **Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/22/07 has been entered.

#### **Claim Rejections - 35 USC § 103**

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

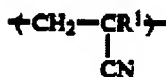
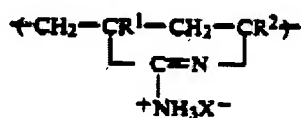
4. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (U.S. 6,713,160) in view of either Igarashi et al. (U.S. 5,882,755) or Sato et al. (U.S. 5,281,340).

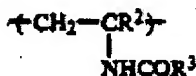
Kitamura et al. disclose ink jet recording material comprising substrate and ink receiving layer wherein the ink receiving layer comprises binder and aqueous dispersion of silica-cationic resin composite fine particles which are pulverization products of agglomerates of the cationic resin and the silica wherein the average composite particle size is controlled to 10-1000 nm during pulverization, i.e. the agglomerate has secondary particle size of 10-1000 nm. The silica has average primary particle size of 3-40 nm. The ratio of pigment to cationic resin is 100/2 to 100/30. The weight average molecular weight of the cationic resin is greater than 100,000 (col.2, lines 20-43, col.3, lines 4-7, col.4, lines 3-13, col.5, lines 4-21 and 41-60, col.6, lines 29-65. col.8, lines 43-46, and col.20, line 55-col.21, line 20).

The difference between Kitamura et al. and the present claimed invention is the requirement in the claims of specific type of cationic resin.

Igarashi et al., which is drawn to coating for ink jet recording sheet, disclose the use of cationic resin that is polyvinylamine type resin known under the tradename SC 700. Given that this is the identical tradename to the cationic resin utilized in the present invention, it is clear that the cationic resin of Igarashi et al. would intrinsically possess structure as set forth in present claims 1-3. The motivation for using such cationic resin is to improve water resistance and suppress deterioration of bond strength of the ink jet recording sheet. Igarashi et al. also disclose the equivalence and interchangeability of using this polyvinylamine type cationic resin, as presently claimed, with using polycondensate of dicyandiamide, as disclosed by Kitamura et al. (col.3, lines 56-60, col.7, lines 22-31, and col.18, lines 49-60).

Alternatively, Sato et al., which is drawn to cationic resin as paper-treating agent, disclose the use of cationic resin comprising units of:





in amounts of 20-90 mol%, 0-70 mol%, and 0-2 mol%, respectively. In another embodiment, the cationic resin contains 50-80 mol%, 0-48 mol%, and 2-20 mol%, respectively, of the above three units. The motivation for using such cationic resin is that it has good storage stability. It is further disclosed that such cationic resin is superior to using ammonium salts of dialkylaminoalkyl(meth)acrylate as disclosed by Kitamura et al. (col.1, lines 6-8, 10-14, and 20-25, col.1, line 53-col.2, line 12, col.4, lines 21-33 and 65-68, and col.5, lines 24-26).

In light of the motivation for using specific cationic resins disclosed by Igarashi et al. or Sato et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use the polyvinylamine type resin of Igarashi et al. or the cationic resin of Sato et al. as the cationic resin in Kitamura et al., and thereby arrive at the claimed invention.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. in view of Igarashi et al. or Sato et al. as applied to claims 10-15 above, and further in view of Nakatani et al. (U.S. 2002/0045034).

The difference between Kitamura et al. in view of Igarashi et al. or Sato et al. and the present claimed invention is the requirement in the claims of specific type of silica.

Nakatani et al., which is drawn to coating for ink jet recording sheet, disclose the use of fumed silica possessing surface area of 100-400 m<sup>2</sup>/g in order to produce high density prints and clear images (paragraphs 36-37 and 40-41).

In light of the motivation for using fumed silica disclosed by Nakatani et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use fumed silica in Kitamura et al. in order to produce coating that produces high density prints and clear images, and thereby arrive at the claimed invention.

6. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (U.S. 6,270,837) in view of Igarashi et al. (U.S. 5,882,755).

Liu et al. disclose ink jet recording material comprising substrate and ink receiving layer wherein the ink receiving layer comprises binder and aqueous dispersion of silica-cationic resin composite fine particles which are pulverization products of agglomerates of the cationic resin and the silica wherein the average composite particle size is controlled to 10-300 nm during pulverization, i.e. the agglomerate has secondary particle size of 10-300 nm. The silica has average primary particle size of 3-40 nm. The ratio of pigment to cationic resin is 100/1 to 100/30 (col.1, lines 11-16, col.3, line 62-col.4, line 3, col.4, lines 5-15, col.5, lines 27-36, col.6, lines 22-30, col.7, lines 7-10 and 31-33, col.8, lines 34-35, and claims 1 and 6).

The difference between Liu et al. and the present claimed invention is the requirement in the claims of specific type of cationic resin.

Igarashi et al., which is drawn to coating for ink jet recording sheet, disclose the use of cationic resin that is polyvinylamine type resin known under the tradename SC 700. Given that this is the identical tradename to the cationic resin utilized in the present invention, it is clear that the cationic resin of Igarashi et al. would intrinsically possess structure as set forth in present

claims 1-3 and would intrinsically possess weight average molecular weight as presently claimed. The motivation for using such cationic resin is to improve water resistance and suppress deterioration of bond strength of the ink jet recording sheet. Igarashi et al. also disclose the equivalence and interchangeability of using this polyvinylamine type cationic resin, as presently claimed, with using polycondensate of dicyandiamide, as disclosed by Liu et al. (col.3, lines 56-60, col.7, lines 22-31, and col.18, lines 49-60).

In light of the motivation for using specific cationic resins disclosed by Igarashi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use the polyvinylamine type resin of Igarashi et al. as the cationic resin in Liu et al., and thereby arrive at the claimed invention.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. in view of Igarashi et al. as applied to claims 10-15 above, and further in view of Nakatani et al. (U.S. 2002/0045034).

The difference between Liu et al. in view of Igarashi et al. and the present claimed invention is the requirement in the claims of specific type of silica.

Nakatani et al., which is drawn to coating for ink jet recording sheet, disclose the use of fumed silica possessing surface area of 100-400 m<sup>2</sup>/g in order to produce high density prints and clear images (paragraphs 36-37 and 40-41).

In light of the motivation for using fumed silica disclosed by Nakatani et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use fumed silica



in Liu et al. in order to produce coating that produces high density prints and clear images, and thereby arrive at the claimed invention.

### **Response to Arguments**

8. Applicants' arguments filed 5/22/07 have been fully considered but they are not persuasive.

Specifically, applicants argue that the cited prior art of record, namely, Kitamura et al. in combination with either Igarashi et al. or Sato et al. is not relevant against the present claims given that the specific effect of the silica pigment-cationic resin composite fine particles on the enhancement of the resistance of the recorded ink images to wet blotting is not taught or suggested by Kitamura et al., Igarashi et al., or Sato et al.

However, firstly, it is noted that there is no requirements in the present claims regarding wet blotting.

Further, even if such blotting limitations were recited in the present claims, on the one hand, attention is drawn to col.5, lines 5-9 and 28-35 of Kitamura et al. that disclose that the silica-cationic resin composite fine particles possess average particle size of 10-1000 nm and that if the average particle size is less than 10 nm, blotting occurs. Thus, it is clear that the ink jet recording sheet of Kitamura et al. produces recorded images with resistance to blot. Similarly, with respect to Liu et al., newly cited against the present claims, attention is drawn to col.1, lines 31-36 which discloses that a recording sheet for ink jet recording system must be able to form ink dots that are not blotted and to col.3, lines 53-58 of Liu et al. that discloses that the recorded

images have excellent resistance to moisture and water. Thus, it is clear that the ink jet recording sheet of Liu et al. produces recorded images with resistance to blot.

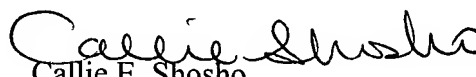
On the other hand, given that Kitamura et al. in combination with Igarashi et al. or Sato et al. (as well as Liu et al. in combination with Igarashi et al.) disclose ink jet recording sheet as presently claimed including silica-cationic resin composite particles as presently claimed, it is clear that the ink jet recording sheet would intrinsically enhance the resistance of the recorded ink images to wet blotting.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
8/3/07